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ABSTRACT

A large scale evaluation of the Montgomery County, Maryland, Public Schools in-service training program for teachers was conducted in 1981. Approximately 1300 teachers were surveyed and over 30 school principals were interviewed. Overall, the data show considerable interest in continued training among teachers of all ages and experience levels. Ninety-seven percent of the sample said that additional training would be beneficial in one or more areas and 95 percent expressed an active interest in receiving training in the next two years. Interviews with the principals revealed some interesting similarities and differences in teachers' and principals' assessments of potentially beneficial areas of training. Generally, the respondents felt that the school district courses were useful, although a number of suggestions for improvement were offered. The data show that approximately 59 percent of all teachers responding attended at least one in-service training course during the last three years and 63 percent indicated that they expected to take courses in the next three years. The study shows that despite the fact that the teaching force is becoming increasingly older and more experienced, a substantial demand for continued in-service training exists. (BW)

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MONTGOMERY COUNTY
PUBLIC SCHOOLS

ROCKVILLE, MARYLAND

Evaluation of MCPS In-service Training

February 1982

TM 830 425

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Prepared by the Department of Educational Accountability

EXECUTIVE SUMMARY OF
EVALUATION OF MCPS IN-SERVICE TRAINING

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EXECUTIVE SUMMARY

INTRODUCTION

The Montgomery County Public Schools have traditionally linked teachers' pay increases and promotions to continued education and the acquisition of credits and formal qualifications. To further encourage teachers to continue taking the courses and training, the county has provided a wide range of courses at no cost to MCPS teachers.

Declining enrollments are currently bringing with them a shrinking, but older and more highly trained teaching force. It is conceivable that a program of staff development which originally was intended to support and improve an expanding and relatively inexperienced teaching force may be inappropriate for one which is increasingly experienced and "tenured." In the absence of new incentives to attend, enrollment in courses may decline. This suggests that there is a need to re-evaluate the objectives, the content and the approach of the in-service training program or develop new incentives for seeking additional education.

At the request of the Department of Staff Development, a large scale evaluation of the MCPS in-service training program for teachers was, therefore, conducted by the Department of Educational Accountability during 1981. This report describes and discusses the results of that evaluation with particular attention to:

a. The needs and interests reported by teachers, and the degree to which these differ among different types of teaching staff.

b. Probable future patterns of course-taking and especially the degree to which fully qualified teachers will attend training without new incentives to do so.

SOURCE OF DATA

The information used in this report was collected from a survey of approximately 1300 classroom teachers and interviews with over 30 school principals. These persons were chosen from a sample of 35 schools which were randomly selected from a population of all MCPS schools stratified by administrative area. Responses were received from 1074 teachers, a response rate of 80%. Inspection of the data suggests that the teachers surveyed provide a sample which is representative of the MCPS teaching population.

FINDINGS

CURRENT NEEDS AND INTERESTS

1. Overall, the data show considerable interest in continued training among teachers of all ages and experience levels. Ninety-seven percent of the sample said that additional training would be beneficial in one or more areas and 95 percent expressed an active interest in receiving training in the next two years. Several areas were selected as being of particular benefit or interest.

   - o The areas most frequently chosen were recent developments in teacher's special subject, teaching the gifted, instructional use of computers, classroom discipline, behavior management, mainstreaming and individualizing instruction (Table 1).

   - o The only areas which were chosen together, to any statistically significant degree, were classroom discipline and behavior management. This suggest that a sub-group of teachers (21-23 percent) felt a considerable need for additional help in classroom control.

   - o Very few differences were found as a function of age or experience of the teachers.

Table 1

Major Areas Identified by Teachers
As Being Beneficial and In Which They Might Enroll

	Percentage Identifying Training As Potentially Beneficial	Percentage Expressing Active Interest in Taking Training
Mainstreaming	21	11
Teaching the Gifted	27	18
Classroom Discipline	23	14
Behavior Management	21	12
Individualizing Instruction	18	12
Instructional Use of Computers	23	18
Recent Developments in Special Subject Area	32	26

2. Interviews with the principals revealed some interesting similarities and differences in teachers' and principals' assessments of potentially beneficial areas of training.

   - o Principals strongly endorsed the teachers' interest in more courses on teaching the gifted and felt that the courses provided thus far had helped them very much. They also felt that more courses in this area would be welcome, given the continuing direction of Board policy.

   - o Principals tended to disagree with teachers regarding the potential benefit of additional training in special subject areas . Several principals felt that it was important to teach the whole child and expressed concern about the excessive content and subject matter orientation on the part of secondary teachers. They also questioned the usefulness of computer courses, feeling that these had little to do with teachers' current job needs, though perhaps a great deal to do with alternative career choices.

3. Generally, the respondents felt that MCPS courses were useful, although a number of suggestions for improvement were offered.

   - o Elementary principals were generally highly complimentary regarding in-service courses, while high school principals saw them as far less important. However, principals agreed that the courses were useful in dealing with specific problems of individual teachers.

   - o Teachers and principals felt that in some areas the in-service offerings did not live up to their expectations. The largest number of these comments were related to the failure of courses to provide practical information directly relevant to school situations and the inconsistent quality of the instructors.

PAST AND FUTURE PATTERNS OF COURSE TAKING

4. The data show that approximately 59 percent of all teachers responding attended at least one MCPS in-service training course during the last three years and 63 percent indicated that they expected to take one or more courses in the next three years.

   - o Younger teachers and those on lower salary steps take more courses—70% of teachers under 30 have taken a course in contrast to 50% of these over 50.

- While a good part of the active course taking of younger teachers appears to be directly related to the financial incentives offered by the county, a significant group of teachers takes courses for substantive reasons, with 30% of the sample indicating that they had previously taken a course primarily for the purpose of increasing their knowledge.

- Twenty-five percent of the total sample indicated that they had not taken a course in the last 3 years; 13 percent indicated that they did not expect to take one within the next 2 years. The reason most frequently given for not taking courses were that they already had enough credits for advanced certification, courses too time consuming, inconvenient location, and courses irrelevant to particular classroom needs and interest.

CONCLUSION

The study shows that despite the fact that the MCPS as a teaching force is becoming increasingly older and experienced, a substantial demand for continued in-service training exists. Several areas emerge as being of interest to teachers at all age and experience levels and should be maintained or expanded -- teaching the gifted, instructional use of computers, classroom discipline, behavior management, mainstreaming and individualizing instruction. Continued courses in teachers' own special subject areas are also desired. However, in many other areas the level of interest is very low and it may be possible to streamline the in-service program by their elimination.

EVALUATION OF MCPS IN-SERVICE TRAINING

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Evaluation of Montgomery County Public Schools

In-service Training

INTRODUCTION

The Montgomery County Public Schools have traditionally linked teachers' pay increases and promotions to continued education and the acquistion of credits and formal qualifications (Master's equivalent; MA; MA + 30 credits). To further encourage teachers to continue taking the courses and training, the county has provided a wide range of courses at no cost to MCPS teachers.

Declining enrollments are currently bringing with them a shrinking, but older and more highly trained teaching force. In the absence of new incentives to attend, course-taking may well decline. Moreover, a program of staff development which originally was intended to support and improve an expanding and relatively inexperienced teaching force may be inappropriate for one which is increasingly experienced and "tenured." This suggests that there is a need to re-evaluate the objectives, the content, and the approach of the in-service training program or develop new incentives for seeking additional education.

At the request of the Department of Staff Development, a large scale evaluation of the MCPS in-service training program was, therefore, conducted by the Department of Educational Accountability during 1981. This report describes and discusses the results of that evaluation with particular attention to:

a. The needs and interests reported by teachers, and the degree to which these differ among different types of staff members.

b. Probable future patterns of course-taking and especially the degree to which fully qualified teachers will attend training without new incentives to do so.

METHODOLOGY

DATA COLLECTION

The information used in this report was collected during the spring and summer of 1981. The sources of data were a survey of classroom teachers and interviews of school principals.

THE SAMPLE

The sample chosen for this study included 35 schools which were randomly selected from a population of all MCPS schools stratified by administrative areas. Table 1 shows the distribution of those schools by school level and administrative area.

Table 1

School Sample Group by School Level and Administrative Area

School Level	Administrative Area[1] I	II	III	IV	V	Total
Elementary	5	4	4	4	4	21
Middle/Junior High	1	1	1	2	1	6
Senior High	1	1	2	1	2	6
Alternative Centers	-	-	-	-	-	2
Totals	7	6	7	7	7	35

[1]The administrative areas shown reflect MCPS area organization configurations for 1981.

All of the teachers (approximately 1300) who were located in the 35 sample schools were surveyed in this study. Responses were received from 1074 teachers, a response rate of 80%. Inspection of the data suggests that the teachers surveyed provide a sample representative of the MCPS teaching population in terms of a number of characteristics (Table 2). Additional details on the characteristics of respondents are presented in Appendix A-1.

Subsequent to preliminary analysis of the teacher survey, principals of the 35 schools sampled were interviewed to obtain their perceptions of teacher training needs and preferences in relation to the needs/goals of their schools.

Table 2

In-service Course Evaluation Teacher Sample

SCHOOL TYPE	TEACHER TYPES						DEGREE STATUS[2]					EXPERIENCE[2]					SEX[2]		RACE[2]	
	Classroom	Special Education	Reading Disadvan.	Resource Room	ESOL	Other[1]	None	Bachelors	Masters	Masters + 30	Doctoral	4 Years or Less	5-24 Years	15-24 Years	25-34 Years	35+ Years	Male	Female	Majority	Minority
Elementary (21)	289	31	29	26	21	92	0	81	322	148	1	61	250	166	69	6	81	471	485	67
Middle/Junior High (6)	258	7	10	6	2	2	0	43	172	109	5	31	176	85	35	2	140	189	301	28
Senior High (6)	468	14	14	6	12	5	1	67	251	236	15	51	25	174	85	8	275	295	506	64
Alternative Centers (2)	0	29	2	0	0	14	0	11	25	11	1	13	27	6	2	0	7	41	45	3
TOTALS	1015	81	55	38	35	113	1	202	770	504	22	156	705	431	191	16	503	996	1337	162

[1]Other includes head start, art, music, physical education, and instrumental music teachers. These numbers are over estimated due to the fact that many of these teachers work in several different schools and may possibly be counted more than once.

[2]These numbers includes all school based professional staff, e.g. teachers, principals, media specialists, counselors, etc.

FINDINGS

CURRENT NEEDS AND INTERESTS

Teacher Responses

A major section of the teacher questionnaire asked respondents to identify up to five areas (from a list of twenty-three) in which they felt additional training would be "most beneficial", and also up to three of the same areas in which they might "actually choose" to take a course within the next two years. They were also asked to note any additional areas of interest.

Results revealed some marked patterns of interest and reported needs. (Table 3)

Table 3

Teacher Selection of Areas In Which Additional Training Would Be Beneficial and In Which They Might Enroll

	Percentage Identifying Training As Potentially Beneficial	Percentage Expressing Active Interest in Taking Training
Mainstreaming	21	11
Child Abuse	15	11
Safety	9	5
Teaching the Gifted	27	18
Drug Abuse	14	10
Basic Reading Instruction	9	4
ISM	7	4
ISRLA	10	7
Use of Student's Learning Time	14	8
Relations with Community (Especially Parents)	12	6
Diagnostic/Prescriptive Techniques	17	10
Classroom Discipline	23	14
Behavior Management	21	12
Individualizing Instruction	18	12
Recordkeeping	10	6
Interpretation of Standardized Test Results	11	6
Test Construction	8	5
Grouping Students	7	4
Instructional Use of Computers	23	18
Human Relations	5	4
Recent Developments in Special Subject Area	32	26
Teaching Students About Other Cultures	10	6
Teaching Children with Handicaps	17	10
None	3	5
Missing	4	8

The data show:

- There was considerable interest expressed in continued training. Ninety-seven percent of the sample said that additional training would be beneficial in one or more areas and 95% expressed an active interest in receiving additional training of some sort in the next two years. More than half of the teachers responding identified four or more areas in which more training would be beneficial.[1]

- The area most frequently chosen as one in which additional training would be beneficial was recent developments in teacher's special subject, an area chosen by 32% of respondents. Teaching the gifted took second place (27%), and instructional use of computers and classroom discipline tied for third (23%). Behavior management and mainstreaming were also chosen by 21% of the respondents.

- Other areas in which teachers felt additional training would be beneficial include individualizing instruction (18%), diagnostic prescriptive techniques (17%), and teaching children with handicaps (17%).

- Of somewhat less benefit to teachers was training related to use of students time, standardized test interpretation, drug abuse, child abuse, ISRLA, Community relations, and teaching about other cultures. All other areas were mentioned by fewer than 9% of the respondents. Human relations was chosen least often of all courses (5%).

- When the data were examined to see whether any particular areas tended to be chosen together, the only statistically significant tendency found was for teachers who chose discipline also to choose behavior management (and vice versa). This suggest that a sub-group (21-23%) of teachers felt a considerable need for additional help in classroom control.

- Finally, the areas in which teachers are most likely to take courses in the near future include recent developments in special subject areas (26%) instructional use of computers (18%), teaching the gifted (18%), classroom discipline/management (13%), and individualization of instruction (12%).

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[1]While respondents' actual, recent attendance at courses suggests that these responses were a bit high, a general interest in additional training is borne out by responses to the other parts of the questionnaire as well as by principals' comments.

Principals' Reactions

Interviews with the principals shed additional light on current training needs, but also revealed some interesting differences in teachers' and principals' assessments.[2] Those assessments are as follows:

- Principals opinions regarding the potential benefit of additional training in special subject areas tend not to agree with the opinions of teachers. Some principals felt that this selection on the part of teachers was due to declining enrollment. They suggested that the teachers wanted more certifications because, often, a school could only keep or hire a teacher who was able to cover more than one subject.

- Several principals expressed concern about the excessive content and subject matter orientation on the part of secondary teachers and felt that it was important to teach the whole child. There was a small minority, however, who were very firm in their support for more content-related offerings.

- Principals also questioned the usefulness of computer courses, feeling that the popularity of this topic had little to do with teachers' current job needs, though perhaps a great deal to do with alternative career choices. Those who did express enthusiasm for computer courses were generally elementary school principals who were themselves enthusiastic course-takers and devotees of MCPS in-service training; they also tended to have the fewest concerns about their staff's future attendance at courses and possible stagnation.[3]

- Principals strongly endorsed the teachers' interest in more courses on teaching the gifted, and felt that the courses provided thus far had helped them very much. They also felt that more courses in this area would be welcome, especially given the continuing direction of Board policy.

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[2]Some caution must be used in interpreting the principals comments as elementary school principals were over represented relative to secondary school principals.

[3]These principals generally chose an area of interest with their staff and took the courses along with them. Clearly, this is easier in an elementary setting.

- With regard to teachers' strong interest in discipline and behavior management, principals consistently felt that teachers in their first years of teaching need practical help in these areas and that MCPS courses are generally very helpful in this respect. However, most did not report any concerns in this area where their more established teachers were concerned, mentioning only experiences with individual teachers.

- Most principals felt that the school system was already doing a good job in training teachers for mainstreaming and that their school was coping well.

- Finally, principals were completely unsurprised by teachers' relative lack of interest in community relations, reasons for behavioral problems, other cultures, and topics not directly related to classroom tasks.

Reasons for Course Taking

Further information on what teachers wanted from courses was sought through an open-ended question asking for their major reasons for taking in-service courses in the past. (Table 4).

Table 4

Reasons Given by Teachers for
Taking In-service Courses in the Past

	1st Reason	2nd Reason	3rd Reason	Total
Certification/ Employment	10[1]	-	-	10
Salary Increase	9	1	-	10
Degree/APC	24	3	-	27
Knowledge	30	20	2	52
Suggested Time	1	0	-	1
Compulsory	8	4	1	12
Recertification/ Reemployment	3	3	1	7
Others	1	-	-	1

[1]Figures represent percentages of teachers

The data show:

- The reason most frequently cited by teachers (52 percent) for taking in-service courses in the past has been to obtain more knowledge. However, these responses should be treated with caution in that only 36 percent of those citing this as a reason had received a graduate degree or Advanced Professional Certification in the last 3 years.

- Other reasons given for having taken courses include advanced degrees/certification (27 percent), compulsion (12 percent), certification/employment (10 percent), and salary increases (10 percent).[4]

Opinion of the In-Service Courses

This year's evaluation did not examine in detail satisfaction with current offerings. However, a request to teachers for any additional remarks they wished to make evoked a number of germane comments; and in the open-ended interviews, principals were explicity asked for their general opinions on the selection, and usefulness of course offerings.

Altogether, 29% of teachers made additional general comments on in-service training. Of these, more than 2/3 were negative. By far the largest number of comments related to the failure of the course to provide practical information directly relevant to school situations; and second, quality of instructors. Other comments given by teachers were that courses were consistently too theoretical and also that courses were too easy.

Most principals, especially elementary principals, were very complimentary about MCPS in-service training, and about Staff Development offerings. In comparing university and MCPS courses they frequently praised MCPS courses for being less theoretical, and having a more "hands-on" approach. Interestingly, among elementary schools, those teachers who saw training courses as most important also tended to have principals who were very active course-takers, suggesting an interaction between school circumstances, principals' attitudes, and the usefulness of in-service training. Further a number of elementary principals expected in-service courses to become more and more important with the cut-back in specialists, notably, in implementing the new science curriculum. In contrast, more of the senior high school principals saw in-service courses as not of very much importance, indicating that they were able to deal with most things in-house. Principals in alternative centers viewed the courses as useless for their teachers, but felt that universities provided the needed courses and that MCPS should not try to duplicate their offerings.

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[4]Older and higher step teachers were significantly more likely to say recertification, or knowledge and less likely to say certification or compulsory. Other relationships all disappear when we control for age or step.

Most principals agreed, however, that courses were useful in helping with the specific problems of individual teachers. The verdict was that they could be of use in improving the performance of marginal teachers, but held out no hope for the hopelessly ineffective. In discussing competency courses in particular, around half said that at least some of the Teacher Competency Courses (TC) had been directly useful to their teachers over the years, the other half did not provide any feedback regarding TC courses.

Principals did, however, point out areas where they too felt that the program could be improved. Like teachers, they too had some concerns about course conception, suggesting that the material was too elementary, mentioning expressly the ever-increasing experience of their staff. In this context, compulsory reading courses were singled out for particular criticism. One principal mentioned that her instructor took no account whatsoever of the fact that many people in the class were not currently teaching reading. Consequently, her assignments became mostly exercises in invention; and a course of which she had high hopes taught her nothing.

While principals praised in-service overall, almost every principal interviewed raised the question of instructor quality. Almost half directly requested some form of instructor quality control; and several respondents asked that more information on instructors be provided before hand. However, on the sorts of people who made the best instructors there was total disagreement among both teachers and principals. For every respondent complaining that; "you do not utilize teachers who...have first hand experience...(but) bring in outside speakers who realize very little of what...schools'...problems are", there was another who said "when a specialist outside MCPS is invited to share knowledge with the class, the session is usually more useful to me," or remarked that "I feel negative towards in-service courses because so many of them wind up being "sharing," self-taught by students involved".

Finally, dissemination was also sometimes critized. A few principals felt that better publicity, fuller explanation of what was happening formally and in informal workshops, or "best of all, a Teachers' Center" would increase participation.

DIFFERING PATTERNS OF INTEREST AND NEED

Age, Step, and Grade

To answer questions raised regarding differing needs of more experienced teachers who had been teaching for many years and the relatively new teachers having less experience, the data were analyzed by age groups (under 30, 30-50, and over 50.) See Appendix Table A-2 for a detailed presentation of these findings.

Differences as a function of age concerning areas in which additional training would be beneficial were found for only a few topics.

- Individualizing instruction was chosen significantly more by the under 30 and over 50 group, less by the 30 to 50 year olds.

- A course in relations with the community (especially parents) decreased in perceived benefit with an increase in age. It was selected by 17.2% of those under 30, 12.3% of those between 30 and 50 and only 5.8% of the over 50 group.

In response to questions concerning courses, which the teachers might actually take, significant differences were found among age groups for three areas.

- Discipline was selected by those under 30 almost twice as much as by those in the other two age groups (23 percent against 13 percent and 12 percent).

- A similar pattern was found for behavior management with the younger group showing a greater interest in taking a course (20% against 11% and 12%).

- Only those under 30 expressed any interest in actually taking a course in the new mathematics curriculum (9% vs. 3% and 5%).

Patterns of choice broken out by salary step mirror the age patterns to a large, but not total degree. These are presented in the Appendix Tables A-3 and A-4. Analyses by salary grade are also presented in this Appendix, (Table A-5) but are not discussed here because of considerable concern about the accuracy of classification. Almost 40% of the respondents either did not know their grade or gave one that no longer exists.

Position

Each of the potential areas of training was analyzed by teacher positions to see if different types of teachers had different training needs (see Appendix A-6a for a complete breakdown of responses). The top 3 choices made by teachers in various positions are as follows:

- Classroom Teachers
  1. Recent Developments in Special Subject Areas
  2. Teaching the Gifted
  3. Instructional Use of Computers

- Resource teachers/IRT/Department Chairpersons
  1. Instructional use of Computers
  2. Recent Developments in Special Subject Areas
  3. Teaching Children with Handicaps

- Special Education/Resource Room Teachers
  1. Recent Developments in Special Subject Areas
  2. Mainstreaming
  3. Diagnostic Prescriptive Techniques

- Reading Teachers
  1. Teaching the Gifted
  2. Recent Developments in Special Subject Areas
  3. Diagnostic/Prescriptive Techniques

- ESOL Teachers
  1. Mainstreaming
  2. Teaching Students About Other Cultures
  3. Individualizing for Instruction

- Kindergarten/Headstart Teachers
  1. Diagnostic/Prescriptive Techniques
  2. Teaching Student About Other Cultures
  3. Teaching Children With Handicaps

- School-based Specialists
  1. Recent Developments in Special Subject Areas
  2. Teaching Children With Handicaps
  3. Classroom Discipline

Correspondingly when teachers were asked to identify the 3 areas in which they would take courses if they were offered, the 3 areas (disregarding order) were identical to those just presented (see Appendix A-6b).

This was true across the board except in three instances. Resource teachers identified teaching the handicapped as a area in which more training would be beneficial, but selected behavior management as a course area they would take; ESOL teachers preferred teaching about other cultures as being beneficial, but selected diagnostic/Prescriptive techniques as being area they would take; school-based specialists selected teaching the handicapped as being beneficial but identified diagnostic/prescriptive techniques as an area that they would take training.

Certification

Finally, areas in which additional training would be beneficial were categorized in terms of teachers' certifications. This produced the largest number of statistically significant differences, (see Appendix 7A, 7B, and 7C). When asked to indicate areas considered potentially beneficial significant differences related to area of certification were found for the following topics:

- Safety
- Teaching the gifted
- Drugs

- Mathematics Curriculum (ISM)
- The New Reading Language Arts Curriculum
- Diagnosis
- Discipline
- Individualization
- Record-keeping
- Interpretation of Standardized Test Results
- Computers
- Recent Developments in Special Subject Area
- Other Cultures
- Handicaps

Selection of a topic as one that might actually be taken also varied significantly for all these except discipline, individualization, record-keeping, and test interpretation.

In general (see Table A-6a and A-6b in Appendix) differences were in predictable directions, math and science teachers most interested in computers, and foreign language teachers were interested in other cultures; and elementary teachers least interested in their special subject. However, less predictable patterns emerged where teaching the gifted, individualization, and discipline were concerned. With regard to the gifted, less interest was shown by math, resource, vocational teachers, physical education, and special education teachers. For individualization, english, science and social science teachers were most interested; for discipline, the greatest interest was shown by math, social studies, foreign language, art and vocational staff.

PATTERNS OF PAST COURSE-TAKING

The second major component of the questionnaire was a series of questions concerning actual and potential levels of course attendance. These were included to make more accurate predictions of future participation than those provided by the interest data.

Attendance of MCPS Courses

Age and Step

Table 5 summarizes recent (1978-81) participation by teachers in MCPS in-service courses. They show that approximately 59 percent of all teachers responding attended at least one course during the last three years. As would be expected, younger teachers and those on lower salary steps took more — 70% of those under 30 had taken a course, in contrast to 51% of those over 50.

Table 5

Attendance of MCPS Training Courses 1978-81 by Step and Age

	Percentage Attending				
	Any Courses	1-3 Credit Courses	More Than 3 Credit Courses	1-3 Non-Compulsory Non-Credit Courses	More Than 3 Non-Credit Courses
Whole Sample (N=1099)	58.5	46.2	9.8	22.4	3.6
By Step:					
1-3	71.4	54.5	16.9	20.8	2.6
4-6	64.6	51.0	18.8	14.6	12.5
7-9	67.9	47.3	15.2	18.8	5.5
10-12	58.1	45.0	9.2	20.5	3.1
13-14	56.8	49.7	7.7	24.6	3.3
L1	56.3	45.4	5.7	30.5	1.1
L2	43.0	34.2	2.5	26.6	-
L3	31.7	31.7	-	17.1	-
By Age:					
Under 30	70.3	50.3	17.9	20.7	4.8
30 - 50	58.0	47.4	8.7	22.9	3.8
Over 50	50.8	39.3	7.3	23.0	1.6

Differences among salary, step and age groupings were significant ($p < .001$) for attendance, # of credit and # of noncredit courses attended.

The pattern indicated here is consistent with that predicted by Staff Development and described by principals. A good part of the active course taking of younger teachers appears to be directly related to the financial incentives offered by the county, teachers take whatever is necessary to get advanced certification etc. At the same time, a significant group of teachers is interested in courses for substantive reasons. They continue to take them even without direct financial incentives, some of them, continually. The data on participation in non-credit courses show this pattern clearly. Whereas fewer older, higher paid teachers take a lot of credit and no noncredit courses, they are considerably more likely than younger teachers to take only noncredit or equal numbers of both. And, as noted above, the number continuing to attend remains rather large in absolute terms.

Position

The relation of course attendance to position and certification was also examined. Position (Table 6) is not significantly related to whether or not a respondent took any MCPS courses at all from 1978-81, or to whether he or she took any non-credit courses: but it is significantly related to whether they took any credit courses. ESOL teachers, special education and resource room specialists took 1-3 credit courses more frequently, and the resource teacher/IRT/ Department Chairperson category almost never took more than three. However, when one controls for age, the relationship ceases to be statistically significant.

Table 6

Attendance of MCPS Courses 1978-81 by Position:
Percentage Attending

		Number of Credit Courses		Number of Non-Credit Courses[1]	
	Any Courses	1-3 Credit Courses	More than 3 Credit Courses	1-3 Non-Compulsory Non-credit Courses	More Than 3 Noncompulsory Non-credit Courses
Classroom Teacher	57	43	10	21	4
Resource/IRT/ Chairperson	55	49	2	26	1
Special Education/. Resource Room	73	59	11	29	5
Reading Teacher	69	50	12	15	0
ESOL Teacher	80	70	10	40	0
Kindergarten/ Head Start	60	48	10	19	5
Specialist	73	51	13	24	4

[1]Also non-conpulsory
Differences among position groupings are:
Nonsignificant for attendance/nonattendance.
Significant ($p < .001$) for # of credit courses attended.
Significant ($p < .05$) for # of noncredit courses attended.

Certification

A relationship between MCPS course attendance and certification also exists, which is again in large part a function of different age and salary distributions - but not completely. Certification and course attendance cross-tabulation results are shown in Table 7.

Table 7

Attendance of MCPS Courses 1978-81 by Certification:
Percentage Attending

		Number of Credit Courses		Number of Non-credit Courses[1]	
	Any Courses	1-3	More than 3	1-3	More than 3
Math	43.2	35.5	5.8	15.7	5.0
English	64.4	48.9	10.9	21.8	4.0
Science	59.8	48.8	9.4	22.8	3.9
Social Studies	60.0	49.0	7.6	27.6	2.1
Physical Education	49.4	38.7	6.3	17.5	1.2
Foreign Language	50.0	43.0	7.0	19.4	4.2
Music	63.2	45.0	12.5	20.0	5.0
Art	75.0	57.1	17.9	32.1	10.7
Vocational	52.3	42.7	6.7	23.6	2.2
Special Education	78.4	63.6	12.5	25.0	5.7
Elementary	63.9	48.5	11.2	24.4	3.1

[1]Non-credit courses are also non-compulsory

The data show a relatively low propensity of junior high and senior high school math and vocational teachers and the very high propensity of special education, art, social studies and English teachers to attend MCPS in-service courses. For example, 58% of junior high and high school teachers with math certification took no MCPS courses 1978-81, compared to 23% of special education staff.

A good part of the relationship between course attendance and certification is a function of age. Art and special education teachers are the youngest groups - 21% and 23% are under 30. High school math certification, by comparison, is held by teachers only 7% of whom are under 30; but then, the same is true of social studies. When the relationship between certification and course attendance is examined, controlling for age, salary grade, and salary step, some relationships to remain. Specifically:

- Within the over-50 group, foreign language teachers' attendance is very low, math and vocational low, special education very high, and english, science and social science and social science high. The differences observed were statistically significant at $p < .01$.

Attendance of University Courses

Respondents were also asked about their recent attendance of college or university courses. This was partly in order to get a more complete picture of current (and likely future) levels of course-taking by MCPS teachers: but also to gauge the extent to which teachers were using their own money to obtain from university courses which were missing in the MCPS program. The findings are summarized briefly here: (Additional data on attendance patterns by age, step, and certification categories are found in Appendixes A8-A10.)

- The data show that overall 44 percent of the teachers surveyed had taken a university course in the last three years (Table 8).

- Obtaining a degree or Advanced Professional Certification was not the primary reason for university attendance (Table 8).

- Attendance at university courses was highest for those certified in special education, music, social study, English and science; and lowest among those certified in mathematics elementary education, foreign language and physical education (Table 9).

Table 8

Pattern of University Course Attendance: 1978-81*

	Attended No University Courses	Reasons for Attending (Percentages of total sample)			
		Reasons Other Than Degree/APC	APC[1]	Degree	for Degree & APC
Whole Sample:	56.5	16.4	8.1	8.5	10.5
Age:					
Under 30	40.9	12.7	6.3	16.3	25.4
30-50	55.1	17.3	9.3	8.5	9.8
Over 50	74.5	15.8	4.4	3.2	2.2
Step:					
1 - 3	35.5	19.7	3.9	25.0	15.8
4 - 6	39.8	14.8	11.6	6.3	27.3
7 - 9	39.9	11.0	14.7	14.7	19.7
10-12	53.7	17.8	10.7	5.8	12.0
13-14	66.0	18.9	5.0	6.7	3.4
L1	70.6	16.8	5.4	4.8	2.4
L2	79.7	14.8	1.4	2.7	1.4
L3	85.0	12.5	2.5	-	-

[1]APC - Advanced Professional Certification

*Differences among age, step and certification grouping, all significant at $p < .000$

Table 9

Attendance of University Courses: 1978-81

	Number of Courses		
	1-3	4-6	More than 6
Step:			
1 - 3	23.4	15.6	24.7
4 - 6	27.1	12.5	19.8
7 - 9	37.0	12.1	13.9
10-12	31.9	7.4	9.2
13-14	21.9	8.7	4.4
L1	25.9	2.9	1.7
L2	13.9	3.8	-
L3	14.6	14.6	-

(Numbers do not sum across because of missing responses on number of courses attended)

FUTURE ATTENDANCE

The questionnaire also asked the respondents directly about their expected attendance of noncompulsory MCPS courses over the next three years. The responses to that question are shown in Table 10.

Table 10

Projected Attendance of Noncompulsory MCPS Courses: 1981-84

	Number of Courses		
	None	1 - 3	More Than 3
Whole Sample	36.9	57.2	5.9
Step*			
1 - 3	27.4	56.1	16.5
4 - 6	27.7	61.7	10.6
7 - 9	27.2	65.4	7.4
10-12	39.3	55.8	4.9
13-14	37.7	56.5	5.7
L1	39.7	57.9	2.4
L2	49.3	50.7	-
L3	65.0	32.5	2.5
Age*			
Under 30	24.6	64.1	11.2
30-50	36.7	57.8	5.5
Over 50	45.9	50.3	3.9

*Differences between grouping's significant at $p < .001$ level

The data show:

- Overall 63% the sample expecting to take one or more a courses in the next 3 years, compared to 59% who did so in the last three. The results should, however, be treated with caution in that demographic changes imply a decrease rather than an increase in course attendance.

- As might be predicted younger less experienced teachers show more propensity for taking MCPS in-service courses than their counterparts. Especially in terms of more than 3 courses.

- No statistically significant relationship between position and expected course attendance was found, even though it occurred for past MCPS courses attended. However two groups, special education/resource room and kindergarten/Headstart teachers are expected to take more non-compulsory offerings than the average. This result was partially in line with past behavior. Math and vocational teachers are only a little below average in their projected participation, though well below in past attendance. Science teachers, with an average recent record, are for some reason very much above average.

- By age, all groups projected rather more widespread participation than had occurred of late; but also rather smaller percentages taking many courses. The discrepancies between recent and expected behavior were greatest for the youngest group; presumably because many are accummulating credits fast, and about to move into a higher salary grade (& age-group), with correspondingly lower incentives to attend.

Non-Participation in MCPS Courses

There exists with MCPS a sizable number of teachers who after receiving advanced certification and/or degrees cease to take any courses. This particular group of teachers, 25 percent of the total sample, have not taken any course in the last 3 years and 142 of them (13 percent of the total sample) indicated that they did not intend to take a course in the next 2 years.

As a group, the non-participants were more likely than the sample as a whole to be classroom teachers; and less likely to be special education teachers, specialists, kindergarten or ESOL teachers. They also included more math, P.E., and vocational teachers, fewer English and special education teachers. Not surprisingly, they were older and higher paid. In their choice of interests they were more likely to say they would take no courses in the areas given, and were markedly less interested in the topics of child abuse, the new reading curriculum, diagnosis, individualization, record-keeping, handicaps and their special subject.

Additional information regarding why respondents had chosen, in the past, not to take in-service training are shown in Table 11.

Table 11

Reasons For Not Taking Courses Between 1978-81:
Percentage Choosing Each Response

	1st	2nd	3rd
Not Teaching at the Time	4.0	0.3	0.1
Had All Necessary Credits For Advanced Certification	28.8	4.3	2.4
Time Consuming	9.4	9.3	4.7
Inconvenient Locations	9.1	9.9	5.0
Information Not Very Useful	6.7	7.2	2.6
Irrelevant to Me	6.9	12.8	8.7
Poor Teaching	1.3	4.7	4.9
Courses Do Not Count For An Advanced Degree	4.5	4.1	4.2
Other	3.9	2.3	4.1

(No Reasons = 25.4%)

The data show:

- For the sample as a whole, the most important reasons for not taking courses were additional credits not needed, courses too time consuming, courses inconveniently located, and courses judged to be irrelevant. Within-sample comparisons by age/step/position/certification/ revealed no significant differences.

LOCALE

The final area where substantive information was sought was that of preferred format and place for training. Table 12 summarizes respondents' ranking of alternative locations and types of in-service training.

Table 12

Respondents Preferences for In-service Training Format and Location: Percentages (Numbers In Parentheses: Absolute Numbers. Sample Size = 1090)

	1st Choice	2nd Choice	3rd Choice	Not Chosen By:
Semester-Long Credit Courses, Offered Countywide 4-7 P.M.	27.3 (298)	17.2 (188)	10.0 (109)	45.4
Semester-Long Credit Courses, Offered Countywide 6:30-9:30 P.M.	6.7 (73)	5.0 (55)	5.5 (60)	82.7
Credit Courses, After Hours in Own School	32.0 (349)	18.0 (196)	6.0 (65)	44.0
Intensive Courses, Courses Spread Over Several Weekends	4.0 (44)	5.5 (60)	3.9 (42)	86.6
Intensive Non-Credit Training, Inhouse, in Own School	12.0 (131)	7.2 (78)	5.3 (58)	72.5
University/ College Graduate Courses	7.5 (82)	6.7 (73)	6.7 (73)	79.1
TV Home Study	7.7 (84)	8.1 (88)	7.1 (77)	77.2
Non-TV Home Study	3.9 (42)	4.8 (52)	6.8 (74)	84.5

	Total Percent/Number Selecting
Other - Specified By Respondent:	
a) "Course in school hours"	1.5 (16)
b) "Week-long conferences in summer"	2.1 (23)
c) "Mini-course (2-4 weeks) for less credit"	0.8 (9)
d) "University courses offered in local school"	0.3 (3)

As the data show the responses do not imply any particular dissatisfaction with current format or timing. However, when responses are broken down by age, salary grade, scale, position, certification and recent course-taking history, a number of interesting and statistically significant differences emerge which may have implications for future planning for a different, older teaching force. Respondents could choose up to three preferred locales for training.

Summarized, the responses show:

- Teachers under 30 more frequently made afternoon (4pm - 7pm) classes offered countywide (the basic current format) one of their choices. Seventy-seven percent selected this alternative, compared to 47 percent of these over 50.

- Younger teachers more frequently chose university graduate courses. Twenty-five percent did so, compared to 11.5 percent of those over 50. This is probably related to the greater need of the younger teachers for obtaining advanced degrees or certification.

- Teachers on the lower salary steps were far more enthusiastic about 4-7 pm countywide classes, university graduate courses, and intensive weekend training. The higher steps chose noncredit hours more often.

- While no statistically significant results were found for a general position-locale relation, some marked individual patterns emerged. Reading teachers were very negative about in-house noncredit courses - only 11.5 percent choose it at all and none made it their first choice. School-based specialists were rather positive about this choice with 35.6 percent of them choosing this format (20 percent made it their first choice). Also, 13.8 percent of special education/resource room teachers made university graduate courses their <u>first</u> choice compared to only 7.5 percent of the whole sample.

- Kindergarten/Headstart teachers most often preferred to choose after hours courses in their own schools; and far less often preferred university courses, even though many of them had taken some recently.

- Almost none of the elementary teachers selected evening or weekend courses 17.9 percent of them made university courses their first choice, and 46.4 percent of them placed classes in their own schools first.

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APPENDICES

Appendix A-1

Selected Characteristics of the Respondent Sample

	N	% of Respondents
Classroom:	751	70.3
Res/IRT/Chair	87	8.1
Special Education	94	8.8
Reading Teacher	26	2.4
ESOL Teacher	20	1.9
Language	21	2.0
Specialist	45	4.2
Miscellaneous	15	1.4
Physical Education	9	0.8
Main Certification:		
Math	122	11.7
English	151	14.5
Science	78	7.8
Social Studies	87	8.4
Physical Education	68	6.5
Foreign Language	47	4.7
Music	38	3.7
Art	26	2.5
Vocational	71	6.8
Special Education	128	12.3
Chemistry	197	18.9
Miscellaneous	9	0.9
Nonvisual	4	0.4
Reading Specialist	7	0.7
Driver Education	2	0.2
Other	2	0.2
ESOL	1	0.1
Counseling	2	0.2
Salary:		
A	93	12.0
B	79	10.2
C	243	31.4
D	289	31.4
MEQ	44	5.7
MA + 30	23	3.0
MQ	2	0.3
Step:		
(High non-response)		
1-3	77	7.4
4-6	96	9.2
7-9	165	15.8
10-12	229	21.9
13-14	183	17.5
L1	174	16.7
L2	79	7.6
L3	41	3.9
Age:		
L30	145	13.4
30-50	738	68.4
750	191	17.7

Table A-2

Potentially Beneficial Areas of Training and Expressed Interest in Taking Training by Age Group

	% Identifying Training As Potentially Beneficial			% Expressing Active Interest in Taking Training		
	Under 30	30-50	Over 50	Under 30	30-50	Over 50
Mainstreaming	24.1	21.3	15.2	9.0	11.9	8.9
Child Abuse	18.6	14.9	12.0	15.2	10.7	7.3
Safety	11.7	8.1	8.9	9.0	4.7	4.7
Teaching the Gifted	26.9	27.6	24.6	15.2	17.9	17.3
Drug Abuse	13.8	14.5	11.0	10.3	10.4	5.8
Basic Reading Instruction	12.4	8.4	9.9	7.6	3.3	4.7
ISM	11.0	6.0	8.4	9.0*	3.3*	5.2*
ISRLA	14.5	9.5	7.9	11.7	5.8	6.3
Use of Student's Learning Time	17.9	13.6	15.2	6.9	7.7	8.9
Relations with Community (Especially Parents)	17.2*	12.3*	5.8*	6.9	6.0	5.2
Diagnostic/Prescriptive Techniques	17.2	17.2	16.2	11.0	10.3	9.4
Classroom Discipline	31.0	21.0	23.6	23.4**	12.7**	11.5**
Behavior Management	28.3	19.1	23.6	20.0*	11.0*	12.0*
Individualizing Instruction	21.4*	16.4*	20.4*	12.4	11.0	11.5
Recordkeeping	15.9	8.5	9.4	9.0	4.6	6.3
Interpretation of Standardized Test Results	11.7	11.4	7.9	7.6	6.8	3.1
Test Construction	8.3	8.1	7.3	7.6	4.9	2.6
Grouping Students	9.7	6.2	7.3	5.5	3.4	5.2
Instructional Use of Computers	15.2	24.4	23.0	13.8	19.0	16.2
Human Relations	4.1	6.1	3.7	4.1	3.8	2.6
Recent Developments in Special Subject Area	23.4	34.0	29.3	17.9	28.3	23.6
Teaching Students About Other Cultures	11.0	11.0	7.9	8.3	6.1	6.3
Teaching Children with Handicaps	20.7	17.6	14.1	13.8	10.6	7.3
% Making No Choices	0.7	3.5	2.6	0.7	4.9	7.3

*p is $< .05$
**p is $< .01$

Appendix A-3

Potentially Beneficial Areas of Training Broken Out by Salary Step

	% Identifying Training as Potentially Beneficial							
	1-3	4-6	7-9	10-12	13-14	L1	L2	L3
Mainstreaming	27.3	25.0	26.1	18.3	17.5	18.4	16.5	22.0
Child Abuse	16.9	19.8	15.8	13.5	14.8	14.9	11.4	14.6
Safety	9.1	8.3	10.9	7.4	7.7	6.3	12.7	14.6
Teaching the Gifted	20.8	35.4	26.7	25.8	26.8	27.6	27.8	14.6
Drug Abuse	11.7	16.7	12.7	13.5	16.4	14.4	15.2	9.8
Basic Reading Instruction	18.2*	6.3*	7.9*	8.7*	4.4*	10.3*	10.1*	17.1*
ISM	10.4	11.5	8.5	3.5	6.0	10.3	3.8	7.3
ISRLA	13.0	15.6	12.7	10.9	7.1	8.0	5.1	7.3
Use of Student's Learning Time	15.6	14.6	19.4	12.2	14.8	13.2	12.7	7.3
Relations with Community (Especially Parents)	19.5	15.6	13.3	10.5	9.3	11.5	11.4	7.3
Diagnostic/Prescriptive Techniques	27.3	14.6	23.6	14.4	17.5	12.6	17.7	12.2
Classroom Discipline	32.5	26.0	25.5	23.6	16.4	18.4	20.3	31.7
Behavior Management	27.3**	30.2**	23.0**	17.9**	15.3**	16.1**	20.3**	36.6**
Individualizing Instruction	26.0**	12.5**	21.2**	15.3**	20.2**	12.6**	15.2**	19.5**
Recordkeeping	14.3	14.6	9.7	8.7	7.7	7.5	11.4	4.9
Interpretation of Standardized Test Results	14.3	10.4	9.7	12.7	12.6	9.8	6.3	7.3
Test Construction	10.4	7.3	9.1	9.2	4.9	8.6	3.8	9.8
Grouping Students	7.8	12.5	8.5	4.8	6.0	5.7	8.9	4.9
Instructional Use of Computers	14.3*	16.7*	21.8*	26.6*	25.7*	29.3*	17.7*	22.0*
Human Relations	6.5	1.0	9.1	7.0	6.0	3.4	3.8	4.9
Recent Developments in Special Subject Area	26.0	33.3	36.4	33.6	36.1	31.0	20.3	29.3
Teaching Students About Other Cultures	7.8	12.5	12.1	10.9	9.8	10.9	8.9	4.9
Teaching Children with Handicaps	18.2	20.8	13.3	21.4	13.7	20.7	12.7	12.2
% Identifying No Interest	0.0	2.1	0.0	4.8	2.2	4.0	6.3	2.4

*$p < .05$
**$p < .01$

Appendix A-4

Expressed Interest in Taking Training By Salary Step

	% Expressing Active Interest in Taking Training							
	1-3	4-6	7-9	10-12	13-14	L1	L2	L3
Mainstreaming	14.3	8.3	13.9	9.6	10.9	10.3	13.9	4.9
Child Abuse	15.6	9.4	13.9	9.2	11.5	10.9	3.8	9.8
Safety	6.5	5.2	4.8	5.2	6.6	4.0	7.6	4.9
Teaching the Gifted	13.0	17.7	18.2	16.6	17.5	22.4	17.7	7.3
Drug Abuse	7.8	9.4	10.3	11.4	9.8	10.9	6.3	4.9
Basic Reading Instruction	13.0**	3.1**	1.8**	4.4**	2.2**	2.9**	3.8**	7.3**
ISM	7.8	8.3	5.5	2.6	3.3	5.7	2.5	0.0
ISRLA	11.7	14.6	8.5	6.6	2.7	4.6	3.8	7.3
Use of Student's Learning Time	9.1	9.4	7.9	7.4	8.2	7.5	7.6	4.9
Relations with Community (Especially Parents)	10.4	7.3	8.5	3.5	6.0	4.0	7.6	4.9
Diagnostic/Prescriptive Techniques	15.6	11.5	12.7	10.0	9.8	6.3	7.6	9.8
Classroom Discipline	27.3*	17.7*	13.9*	14.0*	8.7*	10.3*	11.4*	19.5*
Behavior Management	23.4**	16.7**	9.7**	10.0**	9.8**	8.6**	11.4**	24.4**I
ndividualizing Instruction	19.5	12.5	11.5	10.9	9.8	7.5	8.9	12.2
Recordkeeping	9.1	8.3	4.2	3.5	3.8	6.9	6.3	2.4
Interpretation of Standardized Test Results	11.7	4.2	5.5	7.0	7.7	6.3	2.5	2.4
Test Construction	5.2	4.2	6.7	4.8	4.4	5.2	1.3	4.9
Grouping Students	1.3	8.3	3.6	2.6	6.0	3.4	2.5	4.9
Instructional Use of Computers	14.3	15.6	21.2	17.5	21.3	21.3	12.7	7.3
Human Relations	2.6	4.2	8.5	3.5	3.3	2.3	2.5	0.0
Recent Developments in Special Subject Area	16.9	22.9	33.3	30.1	28.4	21.8	21.5	24.4
Teaching Students About Other Cultures	5.2	7.3	5.3	8.3	5.5	8.0	5.1	2.4
Teaching Children with Handicaps	11.7	7.3	9.7	14.0	7.1	10.9	8.9	12.2
% Identifying No Interest	2.6*	2.1*	2.9*	2.6*	6.6*	5.7*	12.7*	7.3*

*p .05
**p .01

Table A-5

Interest in Potential Areas of Training Broken Out by Salary Grade[1]

	% Identifying Training as Potentially Beneficial						Percent Expressing Active Interest in Taking Training					
	A	B	C	D	MEQ	MA+30	A	B	C	D	MEQ	MA+30
instreaming	24.7	20.3	20.2	19.7	22.7	17.4	10.8	8.9	8.6	11.1	9.1	13.0
ild Abuse	19.4	13.9	12.3	12.5	20.5	21.7	12.9	12.7	10.7	9.0	13.6	13.0
fety	14.0	8.9	5.8	10.0	13.6	4.3	7.5**	5.1**	3.3**	8.0**	9.1**	4.3**
aching the Gifted	25.8	26.6	27.2	24.9	25.0	43.5	10.8	19.0	19.3	15.9	15.9	26.1
ug Abuse	15.1	17.7	12.3	14.2	15.9	21.7	9.7	15.2	8.2	9.3	11.4	8.7
sic Reading Instruction	12.9	10.1	8.6	9.0	9.1	0.0	10.8*	1.3*	2.9*	4.2*	0.0*	0.0*
M	6.5	12.7	6.2	5.9	11.4	4.3	5.4	6.3	4.5	4.2	9.1	4.3
LRA	9.7	12.7	9.1	5.9	18.2	17.4	5.4	11.4	6.2	3.8	13.6	13.0
e of Students Learning Time	15.1**	20.3**	12.3**	13.8**	22.7**	8.7**	9.7	12.7	7.8	6.9	9.1	8.7
lations with Community (Especially Parents)	17.2	8.9	11.9	13.5	18.2	8.7	8.6	3.8	4.5	6.6	9.1	4.3
agnostic/Prescriptive Techniques	23.7*	20.3*	18.5*	10.0*	18.2*	17.4*	16.1*	12.7*	9.9*	4.8*	11.4*	13.0*
assroom Discipline	28.0*	25.3*	24.3*	24.2*	20.5*	4.3*	25.8**	19.0**	14.4**	11.8**	11.4**	0.0**
havior Management	24.7*	29.1*	21.8*	18.7*	22.7*	8.7*	15.1	13.9	12.8	11.4	15.9	0.0**
dividualizing Instruction	26.7	19.0	13.6	16.6	22.7	8.7	14.0	16.5	9.9	10.0	22.7	4.3
cord Keeping	17.2	11.4	10.7	6.2	9.1	4.3	10.8	3.8	6.2	3.8	4.5	4.3
terpretation of Standardized Test Results	10.8	12.7	12.3	7.3	9.1	13.0	6.5	6.3	8.2	4.2	4.5	0.0
st Construction	10.8	10.1	7.0	7.6	9.1	4.3	4.3	6.3	4.9	4.8	0.0	4.3
ouping Students	9.7	5.1	6.6	6.6	11.4	8.7	2.2	5.1	4.5	2.8	4.5	4.3
structional Use of Computers	21.5	20.3	23.5	24.6	25.0	26.1	17.2	22.8	18.5	19.7	25.0	26.1
man Relations	4.3	2.5	4.5	5.2	6.8	8.7	4.3	1.3	4.1	2.8	4.5	4.3
cent Developments in Special Subject Area	30.1	32.9	30.5	37.4	22.7	30.4	18.3*	30.4*	28.0*	29.4*	13.6*	26.1*
aching Children About Other Cultures	11.8	12.7	11.1	9.3	9.1	17.4	6.5	8.9	7.0	5.2	4.5	8.7
aching Children With Handicaps	12.9	17.7	19.3	16.3	15.9	8.7	9.7	11.4	12.3	9.0	4.5	4.3
Interests	1.1	1.3	2.1	4.8	0.0	4.3	1.1	0.0	4.1	7.3	2.1	4.3

[1]lassifications used as reported by respondents. NB Many did not reply (see text)

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p .01

Interest in Potential Areas of Training Broken Out By Position

	Classroom	Resource/ Chair per. of Dept.	Special Ed Resource Room	Reading Teacher	ESOL Teacher	Kindergarten Headstart	Specialist
Mainstreaming	18.2**	17.2**	35.1**	15.4**	45.0**	19.0*	26.7**
Child Abuse	14.9	10.3	21.3	7.7	0.0	14.3	24.4
Safety	8.9	16.1	8.5	0.0	0.0	0.0	4.4
Teaching the Gifted	31.0**	20.7**	14.9**	38.5**	30.0**	9.5**	13.3*
Drug Abuse	14.4	12.6	11.7	7.7	10.0	4.8	15.6
Basic Reading Instruction	7.5*	12.6*	18.1*	11.5*	10.0*	14.3*	2.2*
ISM	7.1**	1.1**	16.0**	3.8**	5.0**	14.3**	0.0**
ISRLA	8.9	9.2	16.0	23.1	10.0	14.3	8.9
Use of Student's Learning Time	16.0	13.8	9.6	15.4	20.0	4.8	4.4
Relations with Community (Especially Parents)	9.9**	14.9**	10.6**	15.4**	10.0**	4.8**	31.1**
Diagnostic/Prescriptive Techniques	15.0**	8.0**	27.7**	26.9**	35.0**	38.1**	28.9**
Classroom Discipline	22.9	18.4	22.3	7.7	30.0	9.5	33.3
Behavior Management	20.1	23.0	22.3	11.5	20.0	14.3	31.1
Individualizing Instruction	18.4	14.9	17.0	19.2	40.0	23.8	6.7
Recordkeeping	9.5	9.2	16.0	7.7	10.0	23.8	0.0
Interpretation of Standardized Test Results	10.8	9.2	10.6	15.4	25.0	9.5	15.6
Test Construction	9.3	4.6	2.1	11.5	5.0	0.0	6.7
Grouping Students	7.1	8.0	5.3	0.0	20.0	9.5	4.4
Instructional Use of Computers	24.6*	28.7*	20.2*	23.1*	5.0*	9.5*	8.9*
Human Relations	4.8	3.4	6.4	0.0	10.0	4.8	15.6
Recent Developments in Special Subject Area	31.4*	24.1*	38.3*	30.8*	20.0*	9.5*	51.1*
Teaching Students About Other Cultures	10.5**	4.6**	6.4**	3.8**	40.0**	33.3**	6.7**
Teaching Children with Handicaps	14.0**	23.0**	18.1**	23.1**	25.0**	28.6**	35.6**
No Interests	3.2	4.6	0.0	0.0	0.0	4.8	4.4

* p .05
** p .01

Percent Expressing Active Interest in Taking Training

	Classroom	Resource Teacher	Special Ed Resource Room	Reading Teacher	ESOL Teacher	Kindergarten Headstart	Specialist
Mainstreaming	9.1*	14.9*	19.1*	7.7*	25.0*	14.3*	13.3*
Child Abuse	10.8	6.9	14.9	3.8	0.0	9.5	20.0
Safety	5.1	11.5	5.3	3.8	0.0	0.0	2.2
Teaching the Gifted	20.1	14.9	8.5	19.2	20.0	0.0	13.3
Drug Abuse	10.0	11.5	3.2	3.8	10.0	14.3	11.1
Basic Reading Instruction	3.7	1.1	7.4	3.8	5.0	14.3	0.0
ISM	4.7	1.1	9.6	0.0	0.0	9.5	0.0
ISRIA	5.9	4.6	12.8	15.4	10.0	9.5	4.4
Use of Student's Learning Time	8.9	6.9	5.3	7.7	0.0	4.8	4.4
Relations with Community (Especially Parents)	4.0**	10.3**	6.4**	3.8**	10.0**	0.0**	22.2**
Diagnostic/Prescriptive Techniques	7.7**	3.4**	20.2**	34.6**	25.0**	19.0**	22.2**
Classroom Discipline	14.5	14.9	12.8	0.0	10.0	9.5	15.6
Behavior Management	11.6	16.1	12.8	7.7	20.0	9.5	17.8
Individualizing Instruction	11.1	10.3	11.7	7.7	35.0	14.3	2.2
Recordkeeping	5.2	6.9	10.6	3.8	0.0	14.3	0.0
Interpretation of Standardized Test Results	5.2*	4.6*	8.5*	11.5*	15.0*	9.5*	17.8*
Test Construction	5.5	6.9	1.1	3.8	5.0	0.0	4.4
Grouping Students	4.7	5.7	4.3	0.0	0.0	0.0	0.0
Instructional Use of Computers	19.2	23.0	16.0	15.4	5.0	4.8	11.1
Human Relations	3.5**	3.4**	3.2**	3.8**	5.0**	4.8**	6.7**
Recent Developments in Special Subject Area	26.1	21.8	25.5	30.8	20.0	14.3	37.8
Teaching Students About Other Cultures	6.8**	3.4**	2.1**	3.8**	15.0**	23.8**	4.4**
Teaching Children with Handicaps	8.9*	6.9*	13.8*	11.5*	15.0*	19.0*	17.8*
No Interests	5.5	3.4	0.0	7.7	0.0	9.5	4.9

* p .05 and **p .01

Table A-7a

Interest in Potential Areas of Training Broken Out by Subject Taught (Major Certification)
Percentage Identifying Training as Potentially Beneficial

	Math	English	Science	Social Science	P.E.	Foreign Language	Music	Art	Vocational	Special Education	Elementary Education
Mainstreaming	19.7	13.2	14.1	21.8	14.7	21.3	31.6	15.4	26.8	28.9	21.9
Child Abuse	11.5	10.6	12.8	12.6	22.1	10.6	5.3	15.4	15.5	21.9	15.7
Safety	5.7**	4.6**	28.2**	2.3**	14.7**	0.0**	2.6**	11.5*	25.4**	7.0**	5.6**
Teaching the Gifted	22.1**	33.8**	34.6**	33.3**	5.9**	36.2**	26.3**	38.5**	11.3**	14.1**	34.5**
Drug Abuse	13.9*	9.3*	21.8*	11.5*	20.6*	21.3*	10.5*	3.8*	16.9*	12.5*	13.7*
Basic Reading Instruction	8.2	11.9	10.3	6.9	7.4	8.5	0.0	3.8	5.6	14.8	11.2
ISM	20.5**	1.3**	0.0**	0.0**	1.5**	0.0**	2.6**	3.8**	0.0**	14.1**	12.7**
ISRLA	6.6**	11.3**	1.3**	3.4**	0.0**	0.0**	2.6**	0.0**	0.0**	20.3**	22.3**
Use of Student's Learning Time	16.4	19.2	23.1	10.3	5.9	8.5	7.9	3.8	15.5	10.2	18.8
Relations with Community (Especially Parents)	6.6	11.3	6.4	12.6	25.0	8.5	10.5	11.5	9.9	16.4	10.7
Diagnostic/Prescriptive Techniques	10.7**	17.2**	9.0**	13.8**	11.8**	8.5**	7.9**	0.0**	8.5**	27.3**	28.9**
Classroom Discipline	32.8*	15.2*	16.7*	26.4*	25.0*	36.2*	21.1*	42.3*	32.4*	21.9*	16.8*
Behavior Management	22.1	15.9	19.2	16.1	26.5	27.7	21.1	34.6	28.2	24.2	18.3
Individualizing Instruction	19.7**	24.5**	29.5**	23.0**	11.8**	19.1**	2.6**	7.7**	11.3**	11.7**	21.3**
Recordkeeping	4.1*	7.3*	9.0*	5.7*	10.3*	6.4*	7.9*	0.0*	15.5*	13.3*	16.2*
Interpretation of Standardized Test Results	4.9*	11.9*	10.3*	14.9*	1.5*	8.5*	5.3*	3.8*	11.3*	14.1*	13.2*
Test Construction	8.2	12.6	10.3	10.3	2.9	10.6	2.6	3.8	11.3	3.9	5.6
Grouping Students	5.7	10.6	7.7	10.3	4.4	12.8	0.0	3.8	5.6	4.7	7.1
Instructional Use of Computers	45.1**	13.2**	41.0**	19.5**	2.9**	10.6**	10.5**	11.5**	15.5**	19.5**	28.4**
Human Relations	3.3	6.6	3.8	5.7	8.8	8.5	10.5	7.7	5.6	7.0	2.0
Recent Developments in Special Subject Area	23.8**	36.4**	39.7**	41.4**	36.8**	42.6**	34.2**	61.5**	47.9**	37.5**	10.2**
Teaching Students About Other Cultures	1.6**	9.3**	3.8**	14.9**	2.9**	31.9**	13.2**	34.6**	5.6**	4.7**	17.8**
Teaching Children with Handicaps	11.5**	11.3**	16.7**	10.3**	29.4**	10.6**	26.3**	38.5**	23.9**	20.3**	15.2**
No Interests	3.3	4.0	2.6	3.4	7.4	2.1	7.9	0.0	1.4	1.6	1.5

* p .05
**p .01

Table A-7b
Interest in Potential Areas of Training Broken Out by Subject Taught (Major Certifi-ation)
Percentage Expressing Active Interest in Taking Training

	Math	English	Science	Social Science	P.E.	Foreign Language	Music	Art	Vocational	Special Education	Elementary Education
Mainstreaming	10.7	5.3	9.0	14.9	5.9	6.4	15.8	15.4	12.7	11.7	14.2
Child Abuse	7.4	6.6	9.0	10.3	22.1	6.4	5.3	11.5	11.3	14.1	11.2
Safety	4.9**	2.0**	16.7**	0.0**	10.3**	0.0**	0.0**	7.7**	16.9**	3.9**	3.0**
Teaching the Gifted	13.1**	19.9**	25.6**	26.4**	2.9**	21.3**	13.2**	26.9**	7.0**	9.4**	23.4**
Drug Abuse	7.4**	6.6**	14.1**	6.9**	23.5**	14.9**	10.5**	11.5**	8.5**	6.3**	9.6**
Basic Reading Instruction	3.3	5.3	3.8	3.4	1.5	2.1	0.0	3.8	1.4	3.9	8.1
ISH	10.7**	0.7**	0.0**	0.0**	0.0**	0.0**	2.6**	3.8**	1.4**	8.6**	8.1**
ISRLA	2.5**	9.9**	0.0**	0.0**	0.0**	0.0**	2.6**	0.0**	0.0**	13.3**	14.7**
Use of Student's Learning Time	9.0	9.9	15.4	1.1	5.9	6.4	5.3	0.0	5.6	6.3	11.2
Relations with Community (Especially Parents)	5.7	3.3	6.4	6.9	10.3	2.1	7.9	0.0	5.6	8.6	4.1
Diagnostic/Prescriptive Techniques	6.6**	7.3**	2.6**	11.5**	5.9**	2.1**	2.6**	0.0**	7.0**	21.1**	17.8**
Classroom Discipline	18.0	10.6	11.5	11.5	16.2	23.4	15.8	15.4	21.1	12.5	11.7
Behavior Management	13.1	11.9	9.0	9.2	13.2	12.8	13.2	7.7	21.1	14.1	9.6
Individualizing Instruction	12.3	17.2	6.4	17.2	5.9	12.8	5.3	3.8	7.0	10.2	13.2
Recordkeeping	0.0	3.3	2.6	2.3	8.8	4.3	5.3	0.0	11.3	8.6	9.6
Interpretation of Standardized Test Results	4.1	4.0	5.1	3.4	0.0	6.4	0.0	0.0	9.9	11.7	8.6
Test Construction	8.2	8.6	6.4	4.6	0.0	2.1	2.6	3.8	2.8	1.6	4.6
Grouping Students	4.1	6.6	5.1	5.7	2.9	4.3	0.0	0.0	1.4	3.1	4.1
Instructional Use of Computers	32.8**	12.6**	30.8**	14.9**	2.9**	14.9**	2.6**	7.7**	11.3**	16.4**	22.8**
Human Relations	2.5	6.0	2.6	5.7	0.0	6.4	10.5	0.0	4.2	3.9	1.5
Recent Developments in Special Subject Area	17.2**	30.5**	34.6**	34.5**	32.4**	38.3**	31.6**	65.4**	35.2**	26.6**	8.6**
Teaching Students About Other Cultures	1.6**	5.3**	0.0**	6.9**	1.5**	21.3**	13.2**	30.8**	1.4**	1.6**	12.2**
Teaching Children with Handicaps	4.1*	6.6*	10.3*	5.7*	23.5*	10.6*	23.7*	19.2*	15.5*	10.9*	6.6*
No Interests	4.9	4.6	2.6	9.2	7.4	4.3	10.5	3.8	4.2	0.0	4.6

* =p .05 and **=p .01

Table A-7a

Interest in Potential Areas of Training Broken Out by Subject Taught (Major Certification)
Percentage Identifying Training as Potentially Beneficial

	Math	English	Science	Social Science	P.E.	Foreign Language	Music	Art	Vocational	Special Education	Elementary Education
Mainstreaming	19.7	13.2	14.1	21.8	14.7	21.3	31.6	15.4	26.8	28.9	21.9
Child Abuse	11.5	10.6	12.8	12.6	22.1	10.6	5.3	15.4	15.5	21.9	15.7
Safety	5.7**	4.6**	28.2**	2.3**	14.7**	0.0**	2.6**	11.5*	25.4**	7.0**	5.6**
Teaching the Gifted	22.1**	33.8**	34.6**	33.3**	5.9**	36.2**	26.3**	38.5**	11.3**	14.1**	34.5**
Drug Abuse	13.9*	9.3*	21.8*	11.5*	20.6*	21.3*	10.5*	3.8*	16.9*	12.5*	13.7*
Basic Reading Instruction	8.2	11.9	10.3	6.9	7.4	8.5	0.0	3.8	5.6	14.8	11.2
ISM	20.5**	1.3**	0.0**	0.0**	1.5**	0.0**	2.6**	3.8**	0.0**	14.1**	12.7**
ISRLA	6.6**	11.3**	1.3**	3.4**	0.0**	0.0**	2.6**	0.0**	0.0**	20.3**	22.3**
Use of Student's Learning Time	16.4	19.2	23.1	10.3	5.9	8.5	7.9	3.8	15.5	10.2	18.8
Relations with Community (Especially Parents)	6.6	11.3	6.4	12.6	25.0	8.5	10.5	11.5	9.9	16.4	10.7
Diagnostic/Prescriptive Techniques	10.7**	17.2**	9.0**	13.8**	11.8**	8.5**	7.9**	0.0**	8.5**	27.3**	28.9**
Classroom Discipline	32.8*	15.2*	16.7*	26.4*	25.0*	36.2*	21.1*	42.3*	32.4*	21.9*	16.8*
Behavior Management	22.1	15.9	19.2	16.1	26.5	27.7	21.1	34.6	28.2	24.2	18.3
Individualizing Instruction	19.7**	24.5**	29.5**	23.0**	11.8**	19.1**	2.6**	7.7**	11.3**	11.7**	21.3**
Recordkeeping	4.1*	7.3*	9.0*	5.7*	10.3*	6.4*	7.9*	0.0*	15.5*	13.3*	16.2*
Interpretation of Standardized Test Results	4.9*	11.9*	10.3*	14.9*	1.5*	8.5*	5.3*	3.8*	11.3*	14.1*	13.2*
Test Construction	8.2	12.6	10.3	10.3	2.9	10.6	2.6	3.8	11.3	3.9	5.6
Grouping Students	5.7	10.6	7.7	10.3	4.4	12.8	0.0	3.8	5.6	4.7	7.1
Instructional Use of Computers	45.1**	13.2**	41.0**	19.5**	2.9**	10.6**	10.5**	11.5**	15.5**	19.5**	28.4**
Human Relations	3.3	6.6	3.8	5.7	8.8	8.5	10.5	7.7	5.6	7.0	2.0
Recent Developments in Special Subject Area	23.8**	36.4**	39.7**	41.4**	36.8**	42.6**	34.2**	61.5**	47.9**	37.5**	10.2**
Teaching Students About Other Cultures	1.6**	9.3**	3.8**	14.9**	2.9**	31.9**	13.2**	34.6**	5.6**	4.7**	17.8**
Teaching Children with Handicaps	11.5**	11.3**	16.7**	10.3**	29.4**	10.6**	26.3**	38.5**	23.9**	20.3**	15.2**
No Interests	3.3	4.0	2.6	3.4	7.4	2.1	7.9	0.0	1.4	1.6	1.5

* p .05
** p .01

Table A-7b
Interest in Potential Areas of Training Broken Out by Subject Taught (Major Certification)
Percentage Expressing Active Interest in Taking Training

	Math	English	Science	Social Science	P.E.	Foreign Language	Music	Art	Vocational	Special Education	Elementary Education
Mainstreaming	10.7	5.3	9.0	14.9	5.9	6.4	15.8	15.4	12.7	11.7	14.2
Child Abuse	7.4	6.6	9.0	10.3	22.1	6.4	5.3	11.5	11.3	14.1	11.2
Safety	4.9**	2.0**	16.7**	0.0**	10.3**	0.0**	0.0**	7.7**	16.9**	3.9**	3.0**
Teaching the Gifted	13.1**	19.9**	25.6**	26.4**	2.9**	21.3**	13.2**	26.9**	7.0**	9.4**	23.4**
Drug Abuse	7.4**	6.6**	14.1**	6.9**	23.5**	14.9**	10.5**	11.5**	8.5**	6.3**	9.6**
Basic Reading Instruction	3.3	5.3	3.8	3.4	1.5	2.1	0.0	3.8	1.4	3.9	8.1
ISM	10.7**	0.7**	0.0**	0.0**	0.0**	0.0**	2.6**	3.8**	1.4**	8.6**	8.1**
ISRLA	2.5**	9.9**	0.0**	0.0**	0.0**	0.0**	2.6**	0.0**	0.0**	13.3**	14.7**
Use of Student's Learning Time	9.0	9.9	15.4	1.1	5.9	6.4	5.3	0.0	5.6	6.3	11.2
Relations with Community (Especially Parents)	5.7	3.3	6.4	6.9	10.3	2.1	7.9	0.0	5.6	8.6	4.1
Diagnostic/Prescriptive Techniques	6.6**	7.3**	2.6**	11.5**	5.9**	2.1**	2.6**	0.0**	7.0**	21.1**	17.8**
Classroom Discipline	18.0	10.6	11.5	11.5	16.2	23.4	15.8	15.4	21.1	12.5	11.7
Behavior Management	13.1	11.9	9.0	9.2	13.2	12.8	13.2	7.7	21.1	14.1	9.6
Individualizing Instruction	12.3	17.2	6.4	17.2	5.9	12.8	5.3	3.8	7.0	10.2	13.2
Recordkeeping	0.0	3.3	2.6	2.3	8.8	4.3	5.3	0.0	11.3	8.6	9.6
Interpretation of Standardized Test Results	4.1	4.0	5.1	3.4	0.0	6.4	0.0	0.0	9.9	11.7	8.6
Test Construction	8.2	8.6	6.4	4.6	0.0	2.1	2.6	3.8	2.8	1.6	4.6
Grouping Students	4.1	6.6	5.1	5.7	2.9	4.3	0.0	0.0	1.4	3.1	4.1
Instructional Use of Computers	32.8**	12.6**	30.8**	14.9**	2.9**	14.9**	2.6**	7.7**	11.3**	16.4**	22.8**
Human Relations	2.5	6.0	2.6	5.7	0.0	6.4	10.5	0.0	4.2	3.9	1.5
Recent Developments in Special Subject Area	17.2**	30.5**	34.6**	34.5**	32.4**	38.3**	31.6**	65.4**	35.2**	26.6**	8.6**
Teaching Students About Other Cultures	1.6**	5.3**	0.0**	6.9**	1.5**	21.3**	13.2**	30.8**	1.4**	1.6**	12.2**
Teaching Children with Handicaps	4.1*	6.6*	10.3*	5.7*	23.5*	10.6*	23.7*	19.2*	15.5*	10.9*	6.6*
No Interests	4.9	4.6	2.6	9.2	7.4	4.3	10.5	3.8	4.2	0.0	4.6

* =p .05 and **=p .01

Table A-7c

Interest in Potential Areas of Training Broken Out by Subject Taught (Major Certification)
Summary Comparison of Elementary, Secondary Classroom Teachers

	Percent Identifying Training as Potentially Beneficial		Percent Sharing Active Interest in Taking Training	
	Elementary	Secondary	Elementary	Secondary
Mainstreaming	21.9	17.1	14.2	7.9
Child Abuse	15.7	14.6	11.2	10.6
Safety	5.6	9.9	3.0	6.0
Teaching the Gifted	34.5	28.7	23.4	18.1
Drug Abuse	13.7	15.0	9.6	10.8
Basic Reading Instruction	11.2	6.7	8.1	2.9
ISM	12.7	4.7	8.1	2.7
ISLRA	22.3	4.0	14.7	2.9
Use of Student's Learning Time	18.8	14.1	11.2	7.4
Relations with Community (Especially Parents)	10.7	9.7	4.1	4.2
Diagnostic/Prescriptive Techniques	28.9	11.2	17.8	5.4
Classroom Discipline	16.8	24.9	11.7	15.2
Behavior Management	18.3	20.8	9.6	11.7
Individualizing Instruction	21.3	18.6	13.2	10.6
Recordkeeping	16.2	7.2	9.6	4.0
Interpretation of Standardized Test Results	13.2	9.7	8.6	4.5
Test Construction	5.6	10.5	4.6	6.0
Grouping Students	7.1	7.8	4.1	4.9
Instructional Use of Computers	28.4	22.4	22.8	17.1
Human Relations	2.0	6.0	1.5	4.3
Recent Developments in Special Subject Area	10.2	39.4	8.6	32.7
Teaching Students About Other Cultures	17.8	9.4	12.2	5.8
Teaching Children with Handicaps	15.2	13.9	6.6	10.3
No Interests	1.5	3.8	4.6	5.8

Table A-8

Attendance of University Courses 1978-81[1]
by Position Classification

	% Attending			
	Any Courses	1-3 Courses	4-6 Courses	Over 6 Courses
Whole Sample	42.4	25.4	7.8	9.1
Position:				
Classroom Teacher	40.5	26.9	8.1	8.0
Resource/IRT Chair	39.1	28.7	3.4	8.0
Special Education/ Resource Room	53.2	21.3	12.8	19.1
Reading Teacher	42.3	26.9	3.8	15.4
ESOL Teacher	55.0	25.0	20.0	5.0
Kindergarten/Head Start	52.4	23.8	9.5	14.3
Specialist	51.1	31.1	8.9	11.1
Miscellaneous	53.3	26.7	13.3	20.0
P.E. Teacher	33.3	22.2	-	11.1
Age:				
Under 30	59.3	19.3	18.6	22.1
30 - 50	43.9	29.8	7.6	8.9
Over 50	24.6	19.9	3.1	3.1

[1]Course attendance is related to degree, status, age, step, position, certification, and salary at the .000 significance level. Numbers related to all except salary (nonsignificant) at the .01 level (or more).

Table A-9

Attendance of University Courses 1978-81

	Number of Courses		
	1-3	4-6	More than 6
Step:			
1 - 3	23.4	15.6	24.7
4 - 6	27.1	12.5	19.8
7 - 9	37.0	12.1	13.9
10-12	31.9	7.4	9.2
13-14	21.9	8.7	4.4
L1	25.9	2.9	1.7
L2	13.9	3.8	-
L3	14.6	14.6	-

(Numbers do not sum across because of missing responses on number of courses attended)

Table A-10

Pattern of University Course Attendance
1978-81*

	Reasons for Attending (Percentage of Total Sample)				
	Attended No University Courses	Reasons Other Than Degree/APC	APC	Degree	Degree & APC
Certification:					
Math	68.3	13.3	3.4	10.9	4.2
English	52.8	19.6	10.1	9.5	8.1
Science	52.0	24.0	9.4	5.3	9.4
Social Science	48.8	25.6	11.6	1.1	12.8
Foreign Language	61.3	11.3	4.6	13.7	9.1
Music	48.5	8.6	11.4	8.6	22.9
Art	50.0	19.2	7.7	15.4	7.7
Vocational	56.3	14.1	12.7	8.5	8.5
Physical Education	60.3	8.8	11.8	5.9	13.2
Special Education	48.7	16.0	6.4	10.4	18.4
Elementary	61.2	15.0	5.7	8.3	9.8

*Differences among age, step and certification grouping, all significant at the .000 level.